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COMPLETE SPECIFICATION

Improvements in Antiperspirant Preparations

We, THE SCHOLL MFG. CO. LIMITED, a Company incorporated under the laws of Great Britain, of 182—204 St. John Street, London, E.C.1, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates antiperspirant and deodorant compositions for use on the skin.

Various astringent compositions have heretofore been proposed for use as agents for controlling excessive perspiration and diminishing odour. Most of these compositions are based upon the use of an aluminium salt such as aluminium sulfate or less irritating materials such as aluminium chlorhydroxide. These compositions have been applied by various means, for example in the form of creams, powders, lotions, roll-ons, squeeze bottle sprays, and aerosol mist sprays. Regardless of the method of application, however, the user still cannot easily control the rapidity of and the density of application of the product without encountering considerable inconvenience. Cream preparations, while they are perhaps the most efficient of the various means of application, are necessarily greasy to the touch and are likely to cause stains. Powder preparations are not readily absorbed on the skin, and it is difficult to confine the contents of a can to a limited and specific area on the skin. Lotions used for this purpose are normally viscous liquids which require an applicator subject to contamination. In addition, the brush or sponge applicator usually furnished with lotions cannot adequately penetrate into the area without several applications. Roll-on type dispensers cannot adequately carry sufficient amounts of the active ingredient to thoroughly penetrate the hair and reach the skin surface so that they are not particularly advantageous in other than mild cases of perspiration. Squeeze bottle sprays and aerosol mists are not adequate since if sufficient active ingredient is sprayed to the desired area, then the area becomes quite wet.

The main object of the present invention to provide an improved antiperspirant composition for application to the human skin in which the aforesaid disadvantages are minimised or avoided.

According to the present invention, an antiperspirant composition comprises a readily collapsible foam having suspended therein an active antiperspirant material, said composition including a non-volatile non-toxic cosmetic carrier, a volatile solvent, water and a liquefied normally gaseous propellant whereby the said composition is such as to penetrate completely into the skin to which it is applied leaving substantially no residue and no wet condition in the area of application.

The foam can be applied through conventional applicator bottles for foams, such as the type employed for shaving creams. The user can spray the active ingredient directly on the skin where needed, or he can spray a small deposit on the forefinger of the hand and apply it to the desired area. In either case, the puff of foam readily spreads without a greasy or sticky feel, and dries almost instantly. The user can easily regulate the amount of antiperspirant composition applied in accordance with the size and type of area to be covered, and the dry foam disappears readily with light massage.

The antiperspirant material is dispersed in a non-volatile, non-toxic cosmetic carrier, in combination with a volatile solvent, and water: this combination is herein referred to as the base and this base is combined with a sufficient amount of a liquefied normally gaseous propellent to provide a suitable foam.

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While proportions of the ingredients of the base may vary, depending upon the particular materials employed or the consistency desired, it has been found that suitable proportions include from 1 to 50% by weight of the non-volatile, non-toxic carrier, from 20 to 60% by weight of the volatile solvent, from 10 to 70% by weight of water, and from 15 to 35% by weight of the active antiperspirant material. This base is then combined with a liquefied normally gaseous propellent, the latter constituting about 10 to 15% by weight of the entire composition.

The non-volatile carrier may be any suitable known cosmetic carrier and should be non-toxic and preferably non-ionic. The carrier may be one or a mixture of two or more of the following group of materials, although the following list is by no means exclusive:

Propylene glycol
Stearic acid
Cetyl alcohol
Diethylene glycol
Ethyloxylated lanolin
Polyoxyethylene ethers
Polyoxyethylene sorbitol lanolin
Polyoxyethylene sorbitan monopalmitate
"Fluinol" (a water soluble lanolin) (Fluinol is a Registered Trade Mark)
"Veegum" (a magnesium aluminium silicate which forms gels with water)
Isopropyl myristate
"Polawax" (stearyl alcohol-ethylene oxide reaction product)
Glycerine
Stearyl alcohol
"Polysorbate" (polyoxyethylene sorbitan mono-oleate)

The volatile solvent is preferably a volatile alcohol, such as ethanol or isopropanol. The only requirement regarding the solvent is that it be non-irritating to the human skin and that it be readily volatizable upon application to the skin.

The active antiperspirant composition preferably includes one or more aluminium salts such as aluminium sulfate and aluminium chlorhydroxide. The latter is also known as aluminium chlorhydrate and has an approximate atomic ratio of aluminium-chlorine of 2 to 1 and an empirical formula of $Al_2(OH)_5Cl$ in aqueous solution. Other aluminium salts such as aluminium chloride may also be used but when used, should be used in combination with less irritating salts or in combination with a buffering agent.

Particularly good results are obtained when the antiperspirant portion of the composition contains allantoin or derivatives of allantoin such as aluminium chlorhydroxy allantoinate, The compound allantoin (also known as 5-ureidohydantoin) and its derivatives are known to be stimulators of cell proliferation and tissue growth. In addition, it is a non-irritating, non-toxic debriding agent. The addition of allantoin itself selves to correct or at least minimize irritation caused to some individuals upon using an aluminium base product. In fact, antiperspirant compositions which contain allantoin or its derivatives provide relief to former areas of irritation, and even heating and complete eradication of such areas.

The invention will now be further described with reference to the following Example.

EXAMPLE

One part by weight of cetyl alcohol and four parts by weight of "Polawax" were heated to 70°C., and 15 parts by weight of a "Veegum" emulsion containing 1% by weight "Veegum" in water was added to the resulting molten material. 19.5 parts by weight of aluminium chlorhydroxide were added to 19 parts by weight water. To this was added 7 parts by weight of aluminium sulfate and 0.5 parts by weight of aluminium chlorhydroxy allantoinate. This solution was heated to 70°C. and added slowly to the emulsified "Polawax" emulsion. About 40 parts by weight of ethanol and perfume were then added slowly to the resulting mixture with constant agitation, while the mixture was cooling but was still at a temperature of about 50 to 60°C. This base was then combined with a gaseous propellent such as one of the "Freon" series FREON is a Registered Trade Mark or propane or isobutane using conventional techniques for cold packing, to form a foam. The resulting composition was stored in a dispensing bottle having an orifice suitable for the ejection of foam under pressure.

The resulting foam could be readily applied to the underarm areas and penetrated quickly into the skin. Within a few seconds, the foam had disappeared, and no feeling of wetness was encountered. The foam composition was considerably easier to use than any commercially avialable material of comparable antiperspirant effectiveness.

WHAT WE CLAIM IS:—

1. An antiperspirant composition comprising a readily collapsible foam having suspended therein an active antiperspirant material said composition including a non-volatile, non-toxic cosmetic carrier, a volatile solvent, water, and a liquefied normally gaseous propellent, whereby the said composition is such as to penetrate completely into the skin onto which it is applied leaving substantially no residue and no wet condition in the area of application.

2. A composition according to Claim 1 including from 1 to 50% by weight of a non-volatile, non-toxic cosmetic carrier, from 20 to 60% by weight of a volatile solvent,

from 10 to 70% by weight of water, from 15 to 35% by weight of an active antiperspirant material, and a sufficient amount of a liquefied normally gaseous propellent to provide a sprayable foam.

3. A composition according to Claim 2 wherein the propellent constitutes from about 10 to 15% by weight of the composition.

4. A composition according to any of Claims 1 to 3 wherein the antiperspirant material contains an aluminium salt.

5. A composition according to any of Claims 1 to 4 wherein the active antiperspirant material contains both an aluminium salt and allantoin.

6. A composition according to any of Claims 1 to 5 wherein the active antiperspirant material contains aluminium sulfate, aluminium chlorohydroxide and allantoin or aluminium chlorhydroxy allantoinate.

7. A composition according to any of Claims 1 to 6 wherein the volatile solvent used is ethanol or isopropanol.

8. A composition according to any of Claims 1 to 7 wherein the carrier consists of from 1 to 50% by weight of a mixture of cetyl alcohol, a stearyl alcohol-ethylene oxide reaction product emulsifier, and a gel forming magnesium aluminium silicate, and the active antiperspirant material consists of a mixture of aluminium sulfate, aluminium chlorohydroxide and allantoin.

9. A composition according to any of Claims 1 to 8 wherein the volatile solvent is ethanol or isopropanol.

10. A readily collapsible antiperspirant foam composition substantially as herein described with reference to the Example.

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